What is claimed is:

1. A mat for use in a paved surface comprising a nonwoven or woven fibrous mat made from fibers including polymer fibers, the polymer fibers having a melting point greater than about 320°F (160°C), and the mat having a load-elongation behavior such that when the mat is subject to tensile stress, the mat achieves at least 90% of its ultimate load at an elongation not greater than 5% of the specimen length in the direction of applied stress.

2. A mat according to claim 1 wherein the polymer fibers have a melting point of at least about 330°F (177°C).

3. A mat according to claim 1 wherein the mat is resistant to shrinkage such that when a 4 ounce (113.4 gram) sample of the mat is held in an oven at 325°F (163°C) for one minute, the area of the mat is reduced to not less than about 90% of its original area.

4. A mat according to claim 3 wherein the area of the mat has substantially no loss of area.

5. A mat for use in a paved surface comprising a nonwoven or woven fibrous mat mad1 1e from fibers selected from the group consisting of mineral fibers, polymer fibers, natural fibers, and mixtures thereof, and a rubbery binder.

6. A mat according to claim 5, wherein the fibers have a melting point of at least 350°F (177°C).

7. A mat according to claim 6, wherein the fibers include carbon fibers.

8. A mat according to claim 5, wherein the fibers have a melting point greater than about 320°F (160°C), and the mat having a load-elongation behavior such that when the mat is subject to tensile stress, the mat achieves at least 90% of its ultimate load at an elongation not greater than 5% of the specimen length in the direction of applied stress.

9. A mat according to claim 6 wherein the mat is made with 100% mineral fibers.

10. A mat according to claim 6 wherein the binder comprises one of the group consisting of a styrene-butadiene rubber, styrene-butadiene-styrene rubber, acrylic copolymers, methylmethacrylate/butyl acrylate, butylacrylate acrylonitrile, styrene acrylate, vinyl acetate/ethylene, vinyl chloride/ethylene, and other polymers having a glass transition temperature below about 20°C.

11. A mat according to claim 10 wherein the mat is made with 100% mineral fibers.

12. A mat for use in a paved surface comprising a nonwoven or woven fibrous mat made from a blend of high melt polymer fibers having a melting point of at least 350°F (177°C) and low melt polymer fibers having a melting point of less than 350°F (177°C).

13. A mat for use in a paved surface comprising a first layer attached to a second layer, the first layer comprising a nonwoven fibrous mat made from fibers selected from the group consisting of mineral fibers, polymer fibers, natural fibers, and mixtures thereof, and the second layer comprising a woven glass fiber mat or grid.

14. A mat according to claim 13 wherein the second layer comprises a plurality of bundles of continuous glass fibers oriented along an X direction relative to the first layer, and a plurality of bundles of continuous glass fibers oriented along a Y direction relative to the first layer.

15. A mat for use in a paved surface comprising a nonwoven or woven fibrous mat made from fibers selected from the group consisting of mineral fibers, polymer fibers, natural fibers, and mixtures thereof, and a nonstick layer on a major surface of the mat, the nonstick layer comprising a polymer layer that melts when hot paving material is applied and a nonstick coating on the outer surface of the polymer layer.

16. A mat according to claim 15 wherein the polymer has a melting point between about 200°F (93°C) and about 300°F (149°C).

17. A method of preventing cracking in a paved surface, the method comprising applying to the paved surface a nonwoven or woven fibrous mat made from fibers including polymer fibers, the polymer fibers having a melting point greater than about 320°F (160°C), and the mat having a load-elongation behavior such that when the mat is subject to tensile stress, the mat achieves at least 90% of its ultimate load at an elongation not greater than 5% of the specimen length in the direction of applied stress.

18. A method according to claim 17 wherein the mat is resistant to shrinkage such that when a 4 ounce (113.4 gram) sample of the mat is held in an oven at 325°F (163°C) for one minute, the area of the mat is reduced to not less than about 90% of its original area.

19. A method of improving a paved surface comprising the steps of:

applying a layer of liquefied asphalt on a surface;

applying a mat over the liquefied asphalt, the mat comprising a nonwoven mat produced from fibers having a melting point above about 330°F (177°C) selected from the group consisting of mineral fibers, polymer fibers, and mixtures thereof, the liquefied asphalt penetrating and soaking the mat; and

applying a layer of paving material over the mat.

20. A method according to claim 19 wherein the mat has a load-elongation behavior such that when the mat is subject to tensile stress, the mat achieves at least 90% of its ultimate load at an elongation not greater than 5% of the specimen length in the direction of applied stress.

21. A mat according to claim 19 wherein the mat is resistant to shrinkage such that when a 4 ounce (113.4 gram) sample of the mat is held in an oven at 325°F (163°C) for one minute, the area of the mat is reduced to not less than about 90% of its original area.

22. A mat according to claim 19 wherein the fibers have a melting point of at least about 350°F (177°C).

23. A method of producing a mat for use in a paved surface comprising contacting fibers selected from the group consisting of mineral fibers, polymer fibers, natural fibers, and mixtures thereof, with a meltable material in the form of finely ground particles or fibers, melting the material such that it surrounds the fibers, and then allowing the material to solidify to function as a binder for the mat.

24. A method according to claim 23 wherein the material is a thermoplastic polymer.